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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: **TAUBER et. al**
Application Serial No.: **10/801,169**
Application Filed: **March 12, 2004**
Attorney Docket No.: **CECOM 5520**
For: **RARE EARTH METAL COMPOUNDS FOR USE IN HIGH CRITICAL TEMPERATURE THIN FILM STRUCTURES FOR SUPER-CONDUCTORS, FERROELECTRICS, PYROELECTRICS, PIEZOELECTRICS, AND HYBRIDS**

AMENDMENTS TO THE CLAIMS

Sir:

In accordance with the enclosed Remarks, please amend the claims in the above-identified application as follows:

1. (Withdrawn) Dielectric substrates of the general formula Sr_2RESbO_6 where RE is a rare earth metal selected from the group consisting of Lutetium, Ytterbium, Thulium, Erbium, Holmium, Dysprosium, Yttrium, Lanthanum, Gadolinium, Samarium, Praseodymium, Europium, Neodymium and Terbium.

2. (Withdrawn) The dielectric substrates, as recited in claim 1, further comprising:

said dielectric substrates being heated for at least 20 hours at between 1400° C and 1600 ° C;

said dielectric substrates having a low dielectric constant in the range of 4.1 to 16.3;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$; and

said dielectric substrates having a low dielectric loss in the range of less than 1×10^{-3} to 9×10^{-3} without a phase transition.

3. (Withdrawn) The dielectric substrate, according to claim 2, being constructed of

Sr_2LuSbO_6.

4. (Withdrawn) The dielectric substrate, according to claim 3, wherein:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having a low dielectric constant of 15.1; and

said dielectric substrate having a low dielectric loss of less than 1×10^{-3}.

5. (Currently Amended) A dielectric substrate of the general formula Sr_2RESbO_6, comprising:

said RE being Lutetium;

said dielectric substrate being constructed of Sr_2LuSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said dielectric substrate being heated for at least 20 hours at between 1400° C and 1600 ° C;

said dielectric substrate is constructed in a thin film structure;

said dielectric substrate having a density GM/CC of 6.90;

said dielectric substrate having a low dielectric constant between 14.3 and 15.9;

said dielectric substrate having an ordered perovskite cubic crystalline structure; and

said dielectric substrate having a low dielectric loss less than 1×10^{-3} ~~without a phase transition~~.

6. (Withdrawn) The dielectric substrate, according to claim 2, being constructed of Sr_2YbSbO_6.

7. (Withdrawn) The dielectric substrate, according to claim 6, wherein:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having a low dielectric constant of 5.1; and

said dielectric substrate having a low dielectric loss of less than 1.0×10^{-3}.

8. (Previously Presented) A dielectric substrate of the general formula Sr_2RESbO_6, comprising:

said RE being Ytterbium;

said dielectric substrate being constructed of Sr_2YbSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said dielectric substrate being heated for at least 20 hours at between 1400° C and 1600 ° C;

said dielectric substrate is constructed in a thin film structure;

said dielectric substrate having a density GM/CC of 5.87;

said dielectric substrate having a low dielectric constant between 4.8 and 5.4;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said dielectric substrate having a low dielectric loss of less than 1.0×10^{-3} without a phase transition.

9. (Withdrawn) The dielectric substrate, according to claim 2, being constructed of Sr_2TmSbO_6.

10. (Withdrawn) The dielectric substrate, according to claim 9, wherein:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having a low dielectric constant of 10.0; and

said dielectric substrate having a low dielectric loss of 2.0×10^{-3}.

11. (Currently Amended) A dielectric substrate of the general formula Sr_2RESbO_6, comprising:

said RE being Thulium;

said dielectric substrate being constructed of Sr_2TmSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said dielectric substrate being heated for at least 20 hours at between 1400° C and 1600 ° C;

said dielectric substrate is constructed in a thin film structure;

said dielectric substrate ~~substrates~~ having a density GM/CC of 6.86;

said dielectric substrate having a low dielectric constant between 9.5 and 10.5;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said dielectric substrate having a low dielectric loss of 2.0×10^{-3} without a phase transition.

12. (Withdrawn) The dielectric substrate, according to claim 2, being constructed of Sr_2ErSbO_6.

13. (Withdrawn) The dielectric substrate, according to claim 12, wherein:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having a low dielectric constant of 5.3; and

said dielectric substrate having a low dielectric loss of 1.6×10^{-3}.

14. (Previously Presented) A dielectric substrate of the general formula Sr_2RESbO_6, comprising:

said RE being Erbium;

said dielectric substrate being constructed of Sr_2ErSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said dielectric substrate being heated for at least 20 hours at between 1400° C and 1600 ° C;

said dielectric substrate is constructed in a thin film structure;

said dielectric substrate having a density GM/CC of 6.77;

said dielectric substrate having a low dielectric constant of 4.1;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said dielectric substrate having a low dielectric loss of 3.2×10^{-3} without a phase transition.

15. (Withdrawn) The dielectric substrate, according to claim 2, being constructed of Sr_2HoSbO_6.

16. (Withdrawn) The dielectric substrate, according to claim 15, wherein:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having a low dielectric constant of 11.6; and

said dielectric substrate having a low dielectric loss of about 3.1×10^{-3}.

17. (Currently Amended) A dielectric substrate of the general formula Sr_2RESbO_6, comprising:

said RE being Holmium;

said dielectric substrate being constructed of Sr_2HoSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said dielectric substrate being heated for at least 20 hours at between 1400° C and 1600 ° C;

said dielectric substrate is constructed in a thin film structure;

said dielectric substrate ~~substrates~~ having a density GM/CC of 6.64;

said dielectric substrate having a low dielectric constant between 11.1 and 12.2;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said dielectric substrate having a low dielectric loss of 3.1×10^{-3} without a phase

transition.

18. (Withdrawn) The dielectric substrate, according to claim 2, being constructed of Sr_2DySbO_6.

19. (Withdrawn) The dielectric substrate, according to claim 18, wherein:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having a low dielectric constant of 11.2; and

said dielectric substrate having a low dielectric loss of less than 1.0×10^{-3}.

20. (Previously Presented) A dielectric substrate of the general formula Sr_2RESbO_6, comprising:

said RE being Dysprosium;

said dielectric substrate being constructed of Sr_2DySbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said dielectric substrate being heated for at least 20 hours at between 1400° C and 1600 ° C;

said dielectric substrate is constructed in a thin film structure;

said dielectric substrate having a density GM/CC of 6.64;

said dielectric substrate having a low dielectric constant between 10.6 and 11.8;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said dielectric substrate having a low dielectric loss of less than 1.0×10^{-3} without a phase transition.

21. (Withdrawn) The dielectric substrate, according to claim 2, being constructed of Sr_2TbSbO_6.

22. (Withdrawn) The dielectric substrate, according to claim 21, wherein:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having a low dielectric constant of 12.9; and

said dielectric substrate having a low dielectric loss of 1.4×10^{-3}.

23. (Currently Amended) A dielectric substrate of the general formula Sr_2RESbO_6, comprising:

said RE being Terbium;

said dielectric substrate being constructed of Sr_2TbSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said dielectric substrate being heated for at least 20 hours at between 1400° C and 1600 ° C;

said dielectric substrate is constructed in a thin film structure;

said dielectric substrate ~~substrates~~ having a density GM/CC of 6.48;

said dielectric substrate having a low dielectric constant of 4.6;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said dielectric substrate having a low dielectric loss of 4.0×10^{-3} without a phase transition.

24. (Withdrawn) The dielectric substrate, according to claim 2, being constructed of Sr_2YSbO_6.

25. (Withdrawn) The dielectric substrate, according to claim 24, wherein:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having a low dielectric constant of 7.1; and

said dielectric substrate having a low dielectric loss of 1.4×10^{-3}.

26. (Previously Presented) A dielectric substrate of the general formula Sr_2RESbO_6, further comprising:

said RE being Yttrium;

said dielectric substrate being constructed of Sr_2YSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said dielectric substrate being heated for at least 20 hours at between 1400° C and 1600 ° C;

said dielectric substrate is constructed in a thin film structure;

said dielectric substrate having a density GM/CC of 6.56;

said dielectric substrate having a low dielectric constant between 6.7 and 7.5;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said dielectric substrate having a low dielectric loss of about 1.4×10^{-3} without a phase transition.

27. (Withdrawn) The dielectric substrate, according to claim 2, being constructed of Sr_2LaSbO_6.

28. (Withdrawn) The dielectric substrate, according to claim 27, wherein:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having a low dielectric constant of 16.3; and

said dielectric substrate having a low dielectric loss of 3.8×10^{-3}.

29. (Previously Presented) A dielectric substrate of the general formula Sr_2RESbO_6, comprising:

said RE being Lanthanum;

said dielectric substrate being constructed of Sr_2LaSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2

$Å^3$;

said dielectric substrate being heated for at least 20 hours at between 1400° C and 1600 ° C;

said dielectric substrate is constructed in a thin film structure;

said dielectric substrate having a density GM/CC of 5.91;

said dielectric substrate having a low dielectric constant between 14.5 and 16.1;

said dielectric substrate having an ordered perovskite cubic crystalline structure; and

said dielectric substrate having a low dielectric loss of about 3.8×10^{-3} without a phase transition.

30. (Withdrawn) The dielectric substrate, according to claim 2, being constructed of Sr_2GdSbO_6.

31. (Withdrawn) The dielectric substrate, according to claim 30, wherein:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having a low dielectric constant of 12.1; and

said dielectric substrate having a low dielectric loss of less than 1.0×10^{-3}.

32. (Previously Presented) A dielectric substrate of the general formula Sr_2RESbO_6, comprising:

said RE being Gadolinium;

said dielectric substrate being constructed of Sr_2GdSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said dielectric substrate being heated for at least 20 hours at between 1400° C and 1600 ° C;

said dielectric substrate is constructed in a thin film structure;

said dielectric substrate having a density GM/CC of 6.42;

said dielectric substrate having a low dielectric constant of 6.0;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said dielectric substrate having a low dielectric loss of 9.0×10^{-3} without a phase transition.

33. (Withdrawn) The dielectric substrate, according to claim 2, being constructed of Sr_2SmSbO_6.

34. (Withdrawn) The dielectric substrate, according to claim 33, wherein:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having a low dielectric constant of 13.6; and

said dielectric substrate having a low dielectric loss of less than 1.0×10^{-3}.

35. (Previously Presented) A dielectric substrate of the general formula Sr_2RESbO_6, comprising:

said RE being Samarium;

said dielectric substrate being constructed of Sr_2SmSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said dielectric substrate being heated for at least 20 hours at between 1400° C and 1600 ° C;

said dielectric substrate is constructed in a thin film structure;

said dielectric substrate having a density GM/CC of 6.26;

said dielectric substrate having a low dielectric constant of 8.8;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said dielectric substrate having a low dielectric loss of 9.0×10^{-3} without a phase transition.

36. (Withdrawn) The dielectric substrate, according to claim 2, being constructed of Sr_2PrSbO_6.

37. (Withdrawn) The dielectric substrate, according to claim 36, wherein:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having a low dielectric constant of 10.9; and

said dielectric substrate having a low dielectric loss of 2.2×10^{-3}.

38. (Currently Amended) A dielectric substrate of the general formula Sr_2RESbO_6, comprising:

said RE being Praseodymium;

said dielectric substrate being constructed of Sr_2PrSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said dielectric substrate being heated for at least 20 hours at between 1400° C and 1600 ° C;

said dielectric substrate is constructed in a thin film structure;

said dielectric substrate ~~substrates~~ having a density GM/CC of 6.02;

said dielectric substrate having a low dielectric constant between 10.4 and 11.4;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said dielectric substrate having a low dielectric loss of about 2.2×10^{-3} without a phase transition.

39. (Withdrawn) The dielectric substrate, according to claim 2, being constructed of Sr_2EuSbO_6.

40. (Withdrawn) The dielectric substrate, according to claim 39, wherein:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having a low dielectric constant of 14.6; and

said dielectric substrate having a low dielectric loss of less than 1.0×10^{-3}.

41. (Previously Presented) A dielectric substrate of the general formula Sr_2RESbO_6, comprising:

said RE being Europium;

said dielectric substrate being constructed of Sr_2EuSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said dielectric substrate being heated for at least 20 hours at between 1400° C and 1600 ° C;

said dielectric substrate is constructed in a thin film structure;

said dielectric substrate having a density GM/CC of 6.30;

said dielectric substrate having a low dielectric constant of 4.6;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said dielectric substrate having a low dielectric loss of 2.0×10^{-3} without a phase transition.

42. (Withdrawn) The dielectric substrate, according to claim 2, being constructed of Sr_2NdSbO_6.

43. (Withdrawn) The dielectric substrate, according to claim 42, wherein:

said dielectric substrate is constructed in a bulk form;

said dielectric substrate having a low dielectric constant of 10.6; and

said dielectric substrate having a low dielectric loss of 2.9×10^{-3}.

44. (Previously Presented) A dielectric substrate of the general formula Sr_2RESbO_6, further comprising:

said RE being Neodymium;

said dielectric substrate being constructed of Sr_2NdSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said dielectric substrate being heated for at least 20 hours at between 1400° C and 1600 ° C;

said dielectric substrate is constructed in a thin film structure;

said dielectric substrate having a density GM/CC of 6.13;

said dielectric substrate having a low dielectric constant between 10.1 and 11.1;

said dielectric substrate having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said dielectric substrate having a low dielectric loss of about 2.9×10^{-3} without a phase transition.

45. (Withdrawn) A thin film high T_c structure, comprising:

a plurality of thin films constructed of a compound of the general formula Sr_2RESbO_6 wherein RE is a rare earth metal;

said plurality of thin films being interspersed with a plurality of layers constructed of a copper oxide superconductor;

said plurality of thin films being deposited by pulsed laser deposition and being heated for at least 20 hours at between 750° C to 825° C;

said plurality of thin films having a low dielectric constant;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$; and

said plurality of thin films having a low dielectric loss without a phase transition.

46. (Withdrawn) A thin film high critical temperature superconductor structure, according to claim 45, further comprising:

said plurality of thin films are constructed of Sr_2LuSbO_6;

said plurality of thin films being heated for at least 20 hours at between 750° C to 825° C; and

said plurality of layers are constructed of $YBa_2Cu_3O_{7-\delta}$.

47. (Withdrawn) A thin film high critical temperature superconductor structure, according to claim 45, further comprising:

said plurality of thin films are constructed of Sr_2LaSbO_6; and

said plurality of layers are constructed of $YBa_2Cu_3O_{7-\delta}$.

48. (Withdrawn) An antenna, comprising:

a single layer of a copper oxide superconductor deposited onto a single crystal substrate of the formula Sr_2LuSbO_6;

said single crystal substrate having a low dielectric constant;

said single crystal substrate having a low dielectric loss without a phase transition;

said formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$; and

said single layer of a copper oxide superconductor being patterned to complete the device.

49. (Withdrawn) A superconductor insulator superconductor step edge Josephson junction, comprising:

a single layer of a copper oxide superconductor deposited onto a single crystal substrate of the formula Sr_2YbSbO_6;

said single crystal substrate having a low dielectric constant;

said single crystal substrate having a low dielectric loss without a phase transition;

said single layer of a copper oxide superconductor being patterned;

a second layer of Sr_2YbSbO_6 deposited onto said single layer of a copper oxide superconductor;

said formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$; and

a second layer of a copper oxide superconductor deposited and patterned on said second layer of Sr_2YbSbO_6.

50-52. (Canceled)

53. (Previously Presented) A buffer layer of the general formula Sr_2RESbO_6, comprising:

said RE being Ytterbium;

said buffer layer being constructed of Sr_2YbSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said buffer layer being heated for at least 20 hours at between 1400° C and 1600 ° C;

said buffer layer is constructed in a thin film structure;

said buffer layer having a density GM/CC of 5.87;

said buffer layer having a low dielectric constant between 4.8 and 5.4;

said buffer layer having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said buffer layer having a low dielectric loss of less than to 1×10^{-3} without a phase transition.

54. (Canceled)

55. (Previously Presented) A buffer layer of the general formula Sr_2RESbO_6, comprising:

said RE being Thulium;

said buffer layer being constructed of Sr_2TmSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said buffer layer being heated for at least 20 hours at between 1400° C and 1600 ° C;

said buffer layer is constructed in a thin film structure;

said buffer layer having a density GM/CC of 6.86;

said buffer layer having a low dielectric constant between 9.5 and 10.5;

said buffer layer having an ordered perovskite pseudo-cubic tetragonal crystalline

structure;

said buffer layer having a low dielectric loss of about 2.0×10^{-3} without a phase transition.

56. (Canceled)

57. (Previously Presented) A buffer layer of the general formula Sr_2RESbO_6, comprising:

said RE being Erbium;

said buffer layer being constructed of Sr_2ErSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said buffer layer being heated for at least 20 hours at between 1400° C and 1600 ° C;

said buffer layer is constructed in a thin film structure;

said buffer layer having a density GM/CC of 6.77;

said buffer layer having a low dielectric constant of 4.1;

said buffer layer having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said buffer layer having a low dielectric loss of 3.2×10^{-3} without a phase transition.

58. (Canceled)

59. (Previously Presented) A buffer layer of the general formula Sr_2RESbO_6, comprising:

said RE being Holmium;

said buffer layer being constructed of Sr_2HoSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said buffer layer being heated for at least 20 hours at between 1400° C and 1600 ° C;

said buffer layer is constructed in a thin film structure;

said buffer layer having a density GM/CC of 6.64;

said buffer layer having a low dielectric constant between 11.1 and 12.2;

said buffer layer having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said buffer layer having a low dielectric loss of 3.1×10^{-3} without a phase transition.

60. (Canceled)

61. (Previously Presented) A buffer layer of the general formula Sr_2RESbO_6, comprising:

said RE being Dysprosium;

said buffer layer being constructed of Sr_2DySbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said buffer layer being heated for at least 20 hours at between 1400° C and 1600 ° C;

said buffer layer is constructed in a thin film structure;

said buffer layer having a density GM/CC of 6.64;

said buffer layer having a low dielectric constant between 10.6 and 11.8;

said buffer layer having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said buffer layer having a low dielectric loss of less than 1.0×10^{-3} without a phase transition.

62. (Canceled)

63. (Previously Presented) A buffer layer of the general formula Sr_2RESbO_6, comprising:

said RE being Terbium;

said buffer layer being constructed of Sr_2TbSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said buffer layer being heated for at least 20 hours at between 1400° C and 1600 ° C;

said buffer layer is constructed in a thin film structure;

said buffer layer having a density GM/CC of 6.48;

said buffer layer having a low dielectric constant of 4.6;

said buffer layer having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said buffer layer having a low dielectric loss of 4.0×10^{-3} without a phase transition.

64. (Canceled)

65. (Previously Presented) A buffer layer of the general formula Sr_2RESbO_6, comprising:

said RE being Yttrium;

said buffer layer being constructed of Sr_2YSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said buffer layer being heated for at least 20 hours at between 1400° C and 1600 ° C;

said buffer layer is constructed in a thin film structure;

said buffer layer having a density GM/CC of 6.56;

said buffer layer having a low dielectric constant between 6.7 and 7.5;

said buffer layer having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said buffer layer having a low dielectric loss of about 1.4×10^{-3} without a phase transition.

66. (Canceled)

67. (Previously Presented) A buffer layer of the general formula Sr_2RESbO_6, comprising:

said RE being Lanthanum;

said buffer layer being constructed of Sr_2LaSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said buffer layer being heated for at least 20 hours at between 1400° C and 1600 ° C;

said buffer layer is constructed in a thin film structure;

said buffer layer having a density GM/CC of 5.91;

said buffer layer having a low dielectric constant between 14.5 and 16.1;

said buffer layer having an ordered perovskite cubic crystalline structure; and

said buffer layer having a low dielectric loss of about 3.8×10^{-3} without a phase transition.

68. (Canceled)

69. (Previously Presented) A buffer layer of the general formula Sr_2RESbO_6, comprising:

said RE being Gadolinium;

said buffer layer being constructed of Sr_2GdSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said buffer layer being heated for at least 20 hours at between 1400° C and 1600 ° C;

said buffer layer is constructed in a thin film structure;

said buffer layer having a density GM/CC of 6.42;

said buffer layer having a low dielectric constant of 6.0;

said buffer layer having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said buffer layer having a low dielectric loss of 9.0×10^{-3} without a phase transition.

70. (Canceled)

71. (Previously Presented) A buffer layer of the general formula Sr_2RESbO_6, comprising:

said RE being Samarium;

said buffer layer being constructed of Sr_2SmSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said buffer layer being heated for at least 20 hours at between 1400° C and 1600 ° C;

said buffer layer is constructed in a thin film structure;

said buffer layer having a density GM/CC of 6.26;

said buffer layer having a low dielectric constant of 8.8;

said buffer layer having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said buffer layer having a low dielectric loss of 9.0×10^{-3} without a phase transition.

72. (Canceled)

73. (Previously Presented) A buffer layer of the general formula Sr_2RESbO_6, comprising:

said RE being Praseodymium;

said buffer layer being constructed of Sr_2PrSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said buffer layer being heated for at least 20 hours at between 1400° C and 1600 ° C;

said buffer layer is constructed in a thin film structure;

said buffer layers having a density GM/CC of 6.02;

said buffer layer having a low dielectric constant between 10.4 and 11.4;

said buffer layer having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said buffer layer having a low dielectric loss of about 2.2×10^{-3} without a phase transition.

74. (Canceled)

75. (Previously Presented) A buffer layer of the general formula Sr_2RESbO_6, comprising:

said RE being Europium;

said buffer layer being constructed of Sr_2EuSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said buffer layer being heated for at least 20 hours at between 1400° C and 1600 ° C;

said buffer layer is constructed in a thin film structure;

said buffer layer having a density GM/CC of 6.30;

said buffer layer having a low dielectric constant of 4.6;

said buffer layer having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said buffer layer having a low dielectric loss of 2.0×10^{-3} without a phase transition.

76. (Canceled)

77. (Previously Presented) A buffer layer of the general formula Sr_2RESbO_6, comprising:

said RE being Neodymium;

said buffer layer being constructed of Sr_2NdSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said buffer layer being heated for at least 20 hours at between 1400° C and 1600 ° C;

said buffer layer is constructed in a thin film structure;

said buffer layer having a density GM/CC of 6.13;

said buffer layer having a low dielectric constant between 10.1 and 11.1;

said buffer layer having an ordered perovskite pseudo-cubic tetragonal crystalline structure; and

said buffer layer having a low dielectric loss of about 2.9×10^{-3} without a phase transition.

78. (Canceled)

79. (Currently Amended) A buffer layer of the general formula Sr_2RESbO_6, comprising:

said RE being Lutetium;

said buffer layer being constructed of Sr_2LuSbO_6;

said general formula including an Sb^{5+} constituent atom with a polarizability of about 1.2 $Å^3$;

said buffer layer being heated for at least 20 hours at between 1400° C and 1600 ° C;

said buffer layer is constructed in a thin film structure;

said buffer layer having a density GM/CC of 6.90;

said buffer layer having a low dielectric constant between 14.3 and 15.9;

said buffer layer having an ordered perovskite cubic crystalline structure; and

said buffer layer having a low dielectric loss constant of less than 1×10^{-3} ~~without a phase transition~~.